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SHORT COMMUNICATION article

The extent of Libyan society's awareness of the importance of pre-marital medical examination

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Abstract: Pre-marital medical examination is a key preventive public health strategy aimed at reducing hereditary and infectious diseases and supporting healthy family formation. Despite its importance, data from Libya - particularly among university students - remains limited. This study assessed the level of awareness, knowledge, and acceptance of pre-marital medical examination among college and institute students in Nalut City, Libya. It examined the association between educational/cultural level and awareness of pre-marital medical examination. A descriptive cross-sectional study was conducted among 600 students aged 19-27 years from colleges and higher institutes in Nalut City, Libya, in 2025. Data were collected using a self-designed electronic structured questionnaire covering sociodemographic characteristics, acceptance of pre-marital medical examination, knowledge of included tests, and attitudes toward the awareness program. Data were analyzed using SPSS version 25, and associations were tested using the Chi-square test. Most of the participants accepted pre-marital medical examinations and acknowledged their importance in preventing marital and health problems (95.8%). A significant association was observed between educational/cultural level and awareness of the necessity of pre-marital medical examination (p=0.007). Although general awareness was high, knowledge of specific hereditary conditions such as thalassemia was comparatively limited. Libyan university students demonstrate high acceptance of pre-marital medical examination, but insufficient detailed knowledge of specific genetic disorders. Strengthening targeted educational programs within universities is essential to improve comprehensive understanding and promote informed health decisions.

Introduction

Pre-marital medical examinations (PME) are preventive public-health measures aimed at identifying transmissible infectious diseases and carrier states of genetic disorders, thereby informing couples and reducing the burden of hereditary and communicable illnesses on families and societies [1]. Several countries have implemented national premarital screening programs targeting hemoglobinopathies and infectious agents; evidence shows that awareness and positive attitudes among youth are necessary for program success and that education interventions can significantly improve knowledge and intentions to screen [1-3]. Recent studies reported that mandatory screening coupled with genetic counseling has reduced thalassemia incidence in some settings, and that educational campaigns effectively improve premarital screening knowledge and attitudes [3-7]. However, data from Libya are relatively limited, and student populations that are near

marriageable age represent a key target group for interventions. This study assesses awareness and knowledge of PME among the university and explores associations with sociodemographic factors, determines the level of awareness and acceptance of PME among students, describes knowledge of the specific tests included in PME, assesses the relationship between cultural/educational level and perceived necessity of PME, and provides evidence-based recommendations for targeted educational interventions.

Materials and methods

Design: Descriptive cross-sectional survey using an electronic structured questionnaire (four thematic sections: demographics; PME acceptance/necessity, knowledge of tests/diseases; and attitudes toward education programs) was used.

Population and sample: Students at the University and the Higher Institute of Science and Technology in Nalut City were included; the sample size is 600, and the age range is 19-27 years.

Ethical considerations: The ethical approval was obtained from the Ethical University Committee at Nalut University (EC-NU-2025). Participation was voluntary, and informed consent was obtained electronically from all participants before data collection. Anonymity and confidentiality of respondents were strictly maintained, and the collected data were used solely for scientific research purposes in accordance with the ethical principles for research involving human participants.

Statistical analysis: Data were analyzed using SPSS version 25. Descriptive statistics were presented as frequencies and percentages. The Chi-square test was used to assess the associations between variables, with a significance level set at $p < 0.05$.

Results

Demographic characteristics: The study included 600 students from Universities and higher institutes in Nalut City, Libya. Of these, 454 (75.7%) were females, and 146 (24.3%) were males (**Table 1**). This reflects the gender distribution at higher education institutions in the region, where female enrollment exceeds male enrollment. Regarding age, nearly half of the respondents **(**48.2%**)** were between 19 and 21 years, followed by 30.3% aged 22-24 years**,** and 21.5% aged 25-27 years (**Table 2**). This indicates that most of the participants were in the younger age group, which aligns with the typical age for undergraduate students.

Table 1: Gender distribution of the Libyan young participants

Gender	Frequency	Percentage
Male	146	24.3%
Female	454	75.7%
Total	600	100%

Table 2: Age distribution of the Libyan participants

Age group (years)	Frequency	Percentage
19-21	289	48.2%
22-24	182	30.3%
25-27	129	21.5%
Total	600	100%

In terms of University distribution, the Higher Institute of Science and Technology represented the largest proportion (28.0%), followed by the Faculty of Medical Technology (22.2%), the Faculty of Education (21.3%), the Faculty of Economics (17.8%), and the Faculty of Law (10.7%) (**Table 3**).

Table 3: College distribution of the participants

University/Institute	Frequency	Percentage
Higher Inst. of Science and Technology	168	28.0%
Faculty of Medical Technology	133	22.2%
Faculty of Education	128	21.3%
Faculty of Economics	107	17.8%
Faculty of Law	64	10.7%

Awareness and acceptance of pre-marital examinations: A very high proportion of students (95.8%) expressed acceptance of undergoing pre-marital medical examinations, indicating a strong positive attitude toward the practice. Similarly, 88.8% of respondents rejected the notion that such examinations are unnecessary, affirming their recognition of the importance of PME. Furthermore, 87.3% of the students agreed that not performing PME could lead to problems in marriage, highlighting their awareness of the preventive role of such tests.

Knowledge of diseases and tests included in PME: The majority of the students (88.7%) knew that PME can detect hereditary and infectious diseases. When asked about specific conditions, 91.8% knew that HIV/AIDs testing is part of the examination package. 79.8% were aware of the blood grouping test, which is essential for detecting potential incompatibility. Awareness of thalassemia and other hereditary disorders was moderate, with some students unable to correctly identify them as part of PME. This indicates that while general knowledge was high, there are still gaps in awareness of specific hereditary conditions.

Educational and cultural influence: When asked about the relationship between cultural/educational level and awareness of PME, 62.7% agreed that a higher cultural background influences knowledge and acceptance of PME. The statistical analysis confirmed a significant association ($p = 0.007$) between educational level and awareness, suggesting that students with higher education or cultural exposure are more likely to appreciate the importance of PME.

Demand for awareness programs: A large proportion of participants reported interest in educational programs and awareness campaigns about PME, showing that universities can play a key role in promoting knowledge and health behavior change.

Discussion

The present findings of this study indicate a notably high level of acceptance and general awareness of PME among Libyan students in Nalut City. 95.8% of respondents affirmed their willingness to undergo PME, and 88.7% recognized that PME is capable of detecting hereditary and infectious diseases. These data reflect a favorable attitude toward PME. When comparing with other studies, the current data align with those from regional contexts. Al-Shafai and others [1] found that most university students in Qatar welcomed premarital screening and believed in its preventive importance. Amran and others [2] similarly documented high intentions for PME among Yemeni students, emphasizing that educational institutions are key settings to foster positive attitudes. However, regarding specific knowledge, disparities appeared. In this study, 91.8% knew that HIV testing is part of PME, whereas 79.8% recognized blood grouping. Awareness of hereditary conditions (e.g., thalassemia) was lower for some respondents. This gap between general awareness and detailed knowledge mirrors the findings of Al Manei and others [8], who studied Bahraini students and found that while many recognized PME's role in detecting infectious diseases, fewer understood its capacity to screen genetic carriers. Natarajan and Joseph [9] highlighted limited genetic literacy in public populations, even within educated groups. Importantly, our study identified a significant association ($p = 0.007$) between cultural/educational level and PME awareness, meaning that students with higher educational or cultural exposure showed stronger belief in PME. This is consistent with Bahrami-Samani and others [10], who showed that structured educational interventions (booklets, videos) improve both knowledge and attitudes.

Likewise, Al-Kindi and others [11] in Oman observed significant gains in PME knowledge after targeted awareness sessions. To the best of our knowledge, no Libyan data have been published. Several health reports indicate that challenges such as an absence of awareness, limited access to health facilities, and insufficient educational programs hinder the effectiveness of PME and infectious diseases [12-15]. This highlights the importance of universities and high schools in Libya in filling this gap by implementing structured awareness campaigns. Interpretation and implications: Although general acceptance is high, gaps in knowledge about hereditary conditions suggest that educational programs should focus on genetic counseling and specific hereditary risks. Students' willingness to attend awareness programs provides a clear opportunity for universities to implement workshops, public health events, and online campaigns to close knowledge gaps [16]. However, this study was restricted to students in Nalut City and may not reflect all Libyan youth. The strong baseline acceptance in Nalut City is an opportunity: program planners can leverage positive attitudes to deliver content that closes gaps in specific knowledge (genetic counseling basics, interpretation of carrier results, implications for offspring). Given the documented success of mandatory screening policies in reducing thalassemia prevalence in some countries, coupling voluntary awareness with policy and counseling could be impactful, while respecting cultural norms and ethical considerations.

Conclusion: Most Libyan university students had a good level of knowledge about the pre-marital medical examination program, and more than half think it was important to be tested. However, some students were not in favor of pre-marital medical examination. Increasing awareness of the Libyan pre-marital medical examination program is important, and motivating students could contribute significantly to increasing the utilization of the pre-marital medical examination program and limiting genetic disorders.

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